

- - REMARKS - -

Claims 1-20 remain under consideration. The allowability of claims 5-12 and 15-17 is noted. The claims have been amended to obviate informalities and improve their form.

CLAIM REJECTIONS UNDER 35 USC § 112

The rejection of claim 14, and claims 15-20 depending therefrom under 35 USC § 112, second paragraph, as being indefinite, is traversed.

Claim 14 has been amended herein pursuant to the Examiner's comment in Paragraphs 4 and 5 of the Office Action, thereby obviating the rejection of claim 14 and claims 15-20 depending therefrom.

CLAIM REJECTIONS UNDER 35 USC § 102

The rejection of claims 1-4, 13, 14 and 18-20 under 35 USC § 102(b) as being anticipated by Leppek et al. (US 5,106,171) is traversed.

Claim 1, and claims 2-4 depending therefrom, all require *inter alia* a controller for determining when the force applying apparatus is in a fast mode release, and modifying the value of the electrical force signal sent to the actuator to limit the rate at which chamber pressure in the apply chamber is reduced during the fast mode release. Leppek does not disclose the concept or problems associated with fast mode release, much less the limitations of claim 1 for determining when a force applying apparatus is in a fast mode release and modifying the value of the electrical force signal sent to the actuator to limit the rate at which chamber pressure in the apply chamber is reduced during the fast mode release. Leppek cannot, therefore anticipate claim 1 or any claim depending therefrom.

As discussed in great detail in the present application, an electrically driven actuator can move so rapidly, when the vehicle operator quickly removes force from the brake pedal, that local fluid pressure in the apply chamber of the actuator will drop low enough, without any detectable change in brake line pressure or wheel speed of the wheels being braked, that minute bubbles of volatile components of the brake fluid will form in the apply chamber, and create significant problems with brake actuation. See present application page 5, line 12 through page 6 line 17; page 12, line 25 through page 13 line 24.

To address this problem, prior to allowing any change in actuator position or pressure in the brake line to be initiated, the present invention determines whether a given release or reduction of pressure on the brake pedal would result in a fast mode release condition, and modifies the command signal that would otherwise be sent to the actuator to limit the speed of retraction of the actuator, so that the reduction in pressure within the apply chamber will be slow enough to preclude forming bubbles within the apply chamber. See present application page 13, line 11 through line 24.

Leppek addresses a totally different problem, and does not disclose anything related to the problem of not letting apply chamber pressure in an actuator drop too low that is addressed by the present invention. Leppek addresses the problem of maintaining acceptable braking force during the sudden pressure release that is incident with an ABS system dealing with an incipient wheel lock condition by an ABS controller rapidly releasing brake pressure for a calibrated period of time that is a function of wheel parameters, and in the process would potentially exacerbate greatly the problem addressed by the present invention. See Leppek column 2, lines 5-9; 34-54. The anti-lock brake system of Leppek would clearly suffer from the very problems that the present invention is addressing, and does not disclose any indication that Leppek would be incapable of providing a solution.

Claim 13 has been amended herein to depend from allowed claim 11, rather than from claim 1, thus obviating the rejection resulting from its former dependency from claim 1, and is now believed to be allowable. Leppek does not disclose the limitation of claim 13 requiring means for storing in the controller a modified value of the electrical force signal, as determined in the intervening and base claims, and cannot therefore anticipate claim 13.

Claim 14, and claims 18-20 depending therefrom, all require *inter* receiving a desired force actuation signal at the controller, determining when the force generating apparatus is in a fast mode release, modifying the electrical force signal to limit the rate at which fluid pressure in the apply chamber is reduced during the fast release mode, and sending the modified electrical force signal to the actuator. As discussed above in relation to the rejection of claims 1-4, Leppek does not disclose these limitations, and cannot therefore anticipate any of claims 14, and 18-20. Claims 18-20 include additional limitations that are also not disclosed by Leppek.

SUMMARY

Applicants believe that the application is in condition for allowance. Reconsideration and notification of allowance are respectfully requested.

PROCEDURAL MATTERS AND FEES

By amendment herein, Applicants have not added any claims but have amended claims 5, 6 and 15 from dependent to independent form. The Commissioner is authorized to charge the fees for amending three claims from dependent to independent form to deposit account 50-0831. Applicant believes that no other fees are occasioned by the submittal of this paper. The commissioner is authorized, however, to charge any fees or credit any refunds occasioned by submittal of this paper to deposit account number 50-0831.

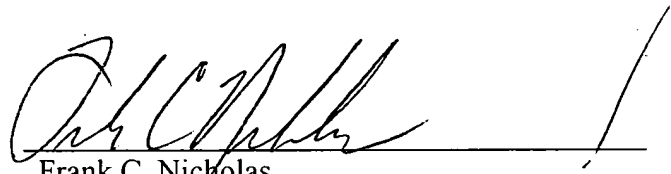
Dated: April 8, 2003

Respectfully submitted,
Bryan P. Riddiford, *et al.*

DELPHI TECHNOLOGIES, INC.
Legal Staff
Mail Code: 480-410-202
Troy, Michigan 48007
PO Box 5052
Phone: (248) 813-1235
Fax: (248) 813-1222

Scott A. McBain
Registration No. 37,181
Attorney for Applicants

CARDINAL LAW GROUP
Suite 2000
1603 Orrington Avenue
Evanston, Illinois 60201
Phone: (847) 905-7111
Fax: (847) 905-7113



Frank C. Nicholas
Registration No. 33,983
Attorney for Applicants